

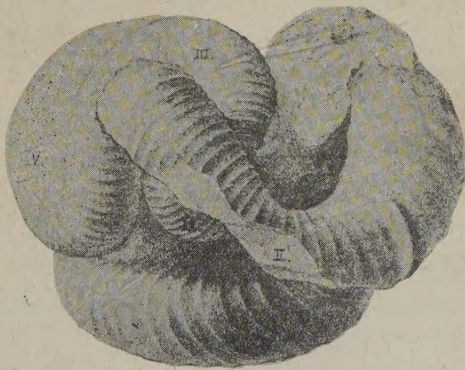
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Publication of a New Series of the Transactions and Proceedings of the Palaeontological Society of Japan.

The transactions and proceedings of the Society formerly were published simultaneously both as a part of the Journal of the Geological Society of Japan and separately as the Transactions and Proceedings of the Palaeontological Society of Japan. The Transactions and Proceedings were bounded and issued quarterly and 21 numbers were issued from 1935 to 1941. The dual appearance was not possible during 1942 to 1950 and articles No. 123 to No. 191 appear only in the Journal of the Geological Society.

Meetings of the Society were held again quarterly after June, 1948. Beginning in 1951, the Palaeontological Society will publish its Transactions and Proceedings as a New Series separately from the Journal of the Geological Society.

All Communications relating to this Journal should be addressed to the
PALAEONTOLOGICAL SOCIETY OF JAPAN
Geological Institute, Faculty of Science, Tokyo University, Japan

192. SOME CARBONIFEROUS CORALS FROM SOUTHWESTERN JAPAN¹⁾

MASAO MINATO

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西南日本産二三の石炭紀珊瑚: *Nagatophyllum* に就て論じ *Nagatophyllum satoi* OZAWA, *Amygdalophyllum naesoidea* MINATO, (nov.) *Clisaxophyllum awa* MINATO (nov.) を記載す, 其時代は石炭紀中期と考へられる 湊正雄

Corals are abundant locally in the Carboniferous limestones of Southwestern Honsyu, Japan. Especially, the three species described in this note, are very rich in individuals.

The stratigraphical horizon of *Nagatophyllum*, *Clisaxophyllum* and *Amygdalophyllum* herein treated, was previously regarded as Uppermost Lower Carboniferous in age, but from their associate fossils the age must now be accepted as Middle Carboniferous.

	1	2	3	4	5	6	7	8	9
<i>Nagatophyllum satoi</i>									
OZAWA.....		x						x	x
" <i>Lonsdaleia</i> " <i>enormis</i>									
OZAWA.....		x	x						
<i>Amygdalophyllum</i>									
<i>naesoidea</i> MINATO.....		x	x						
<i>Meniscophyllum longi-</i>									
<i>septata</i> MINATO (M.S.) ...		x							
<i>Lonsdaleia</i> sp.=									
L. " <i>crassiconus</i> "		x	x						
<i>Echinophyllum giganteum</i>									
YABE et HAYASAKA		x	x						
<i>Fistulipora minima</i> ^a									
HAYASAKA				x	x				
<i>Fusulinella biconica</i>									
HAYASAKA				x				x	
<i>Staffella</i> sp.....								x	
<i>Clisaxophyllum awa</i> MINATO ...		x	x					x	x

1. Isa-mura, Prov. Nagato, C. of Y. OZAWA (1925)
2. Tobinosu, Prov. Nagato, C. of Y. OZAWA (1925)
3. Ohkubo, Ohta-mura, Prov. Nagato
4. Omi limestone, V of I. HAYASAKA (1924)
5. Omi limestone, II of I. HAYASAKA (1924)
6. Omi limestone III of I. HAYASAKA (1924)
7. Kuwabara, Prov. Nagato
8. Taishaku limestone, 5 3 of H. HUZIMOTO (1944)
9. Ibuki limestone, Ohtaki Formation of T. Seki (1939)

Here the writer wishes to express his cordial thanks to Professors T. KOBAYASHI, H. HUZIMOTO, S. HANZAWA and R. TORIYAMA, who have kindly submitted their specimens to the writer for study.

Genus *Nagatophyllum* OZAWA 1925

Etymology:—The coral was collected and described by the late Dr. Y. OZAWA from a limestone at Tobinosu in Oda-mura, which is a small village in the Province of Nagato, whence the generic name came.

Genotype: *Nagatophyllum satoi* OZAWA

The writer examined the original material of Dr. OZAWA, now in the col-

1) Read June 24, 1950; received July 15, 1950.

lection of the Geological Institute, Tokyo University. Unfortunately only one thin section of the original material described by him was found. This thin section is identical with the specimen illustrated by OZAWA as fig. 4 in his plate XII.

The original diagnosis runs as follows:

Corallum composed of circular, tapering and proliferous stems; internally it consists of three areas; 1st, a cylindrical, defined complex axis, built up of a medial plate and axial tabellae; 2nd, a zone of strong, vertical and radiating septa, connected by thin oblique transverse dissepiments; 3rd, broad pure dissepimental area between the septal zone and the epitheca, composed of regularly arranged dissepiments extending obliquely upwards and outwards. Septa, of two orders, rest upon a platform of dissepiments and have always their corresponding row of dissepiments. The septal fossula often conspicuous, especially in the young corallite.

Remarks:—His description must now be revised. Firstly his so-called dissepiments of his dissepimental area (his third area) are not true dissepiments, but mere septal modification. The septa including the major and minor ones, show in this part strong naos trend. True dissepiments existing only in the medial area (his 2nd area), where the naos trend in septa is no more discernible. The axial structure is formed only by axial tabellae and septal lamellae are lacking. The median plate is obsolete in the thin section examined by the writer.

This genus should be regarded to be related to *Symplectophyllum*, established by HILL (1934, p. 64) on *S. mutatum*, from the Lower Carboniferous of Australia. The criterion distinguishing these two corals is in the construction of the columella, namely *Nagatophyllum* lacks

septal lamellae while they exist in the columella of *Symplectophyllum*. Since, the columella of the latter genus is variable, the writer doubts whether these two corals should be held distinct.

Nagatophyllum satoi OZAWA

figs. b1, b2, b3

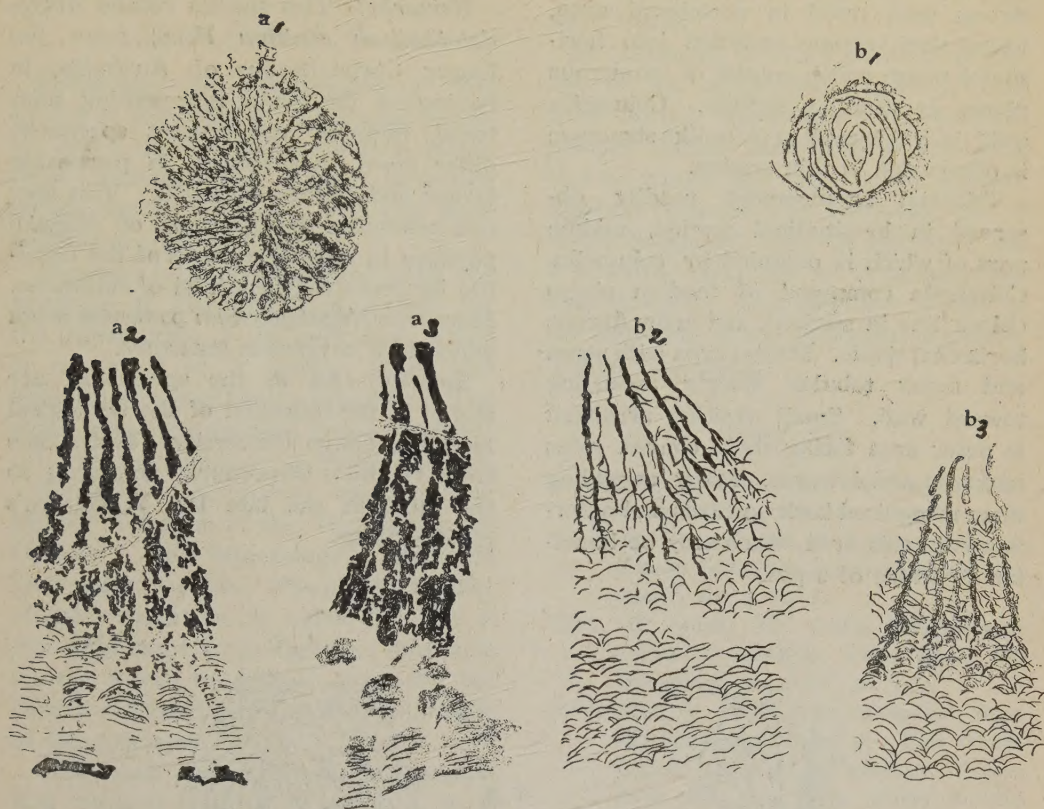
1925. *Nagatophyllum satoi* OZAWA: Palaeontological and Stratigraphical Studies on the Permo-Carboniferous Limestone of Nagato, p. 79, pl. XII, figs. 1,2,3,4,5.

This species is interesting in showing a strong naos trend in the septa. The columella is formed rather simply by the indistinct median plate and numerous tabellae, the latter of which are slightly thickened by stereoplasmic deposits. This feature is reminiscent of *Clisaxophyllum awa* MINATO.

Remarks:—According to OZAWA, this species was found in a limestone at Tobinosu in Oda-mura in association with his "*Lonsdaleia*" *enormis* and *Fisutlipora nagatoensis*. "*Lonsdaleia*" *enormis* is also associated with *Lonsdaleia floriformis crassiconus* at Maruyama in Isa-mura, although some doubt remains as to the specific identification of the latter. *Lonsdaleia floriformis crassiconus* was also found in a few other localities somewhere in Southwest Japan together with Moscovian Fusulinids. The mentioned occurrences were ascertained by OZAWA in the Nagato District.

According to SEKI (1939, p. 521) *Nagatophyllum* occurs in the Ibuki district in association with a Moscovian fauna. HUZIMOTO (1944 p. 1) found this species in the Taisyaku plateau in association with *Lophocarinophyllum* sp. and *Chaetetes* sp. in one locality and with *Staffella* sp., *Lithostrotionella* sp., and *Thysanophyllum* sp. in another.

Accordingly, the writer now regards this species to denote the oldest Middle



Carboniferous rather than the Upper Viséan as formerly thought by OZAWA and others, although the specific identification of these corals may need revision.

T. SUGIYAMA (1939, p. 13) once listed a doubtful *Nagatophyllum* from the Permian deposits at Hirabara and Sisinode (or Kanoide), both in Nagato district. The writer was unable to examine SUGIYAMA's specimens and doubts whether this genus ranges back to the Permian.

Amygdalophyllum naosoidea MINATO,
sp. nov.

figs. a1, a2, a3

Etymology:—This species is characteris-

tic in the remarkable naos trend in septa, especially in the peripheral area of the corallite. It is related to *Nagatophyllum* and *Symplectophyllum*, except in the construction of the columella.

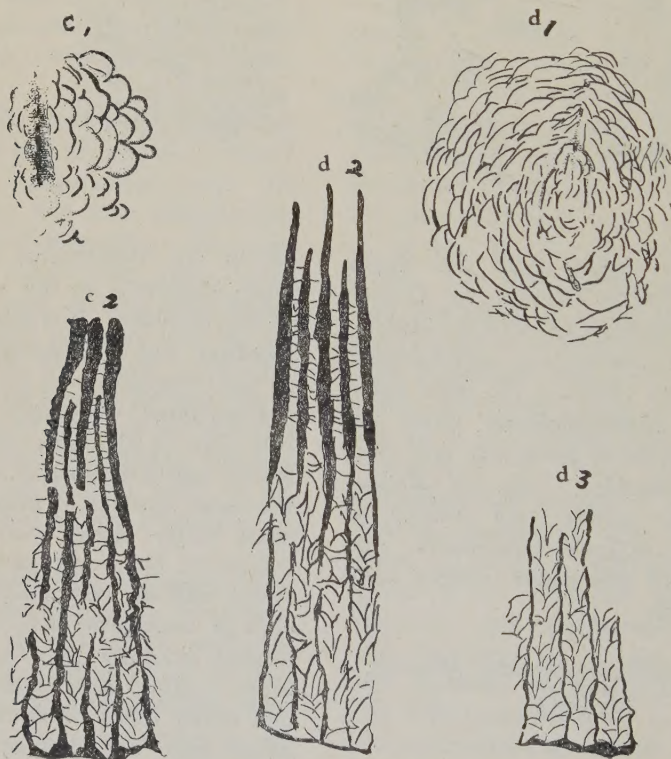
Description:—Corallum simple. Corallite large, ca 30 mm in calicular diameter. Major septal number 33, alternating with the same number of minor ones; major septa fairly thick, reaching almost to columella, but never penetrating into it. Axial ends of most major septa shape-club in transverse section; minor ones always gradually thinning distally. All septa uniting with outer wall. Major and minor septa of continuous type in distal part but become cavernous in medial area and lastly tend to represent

strong naos trend in peripheral area, where they become modified into horizontal tissue which consist of numerous plates as wide as septum. Columella solid, in which median plate-like structure is observable in thin section.

Triaerial arrangement readily observed in longitudinal section, middle part of which is occupied by columella. Columella composed of median plates (black line in section), and many fibrous horizontal tissue. Medial area with septa and many tabulae steeply ascending toward wall. Small vesicles arranged in outer area facing their convex sides upwards and inwards. Many ascending lines recognized both upwards and outwards in this area, which may be lamellar structure of septa.

Remarks:—This species recalls *Amygdalophyllum conicum* HILL, from the Lower Carboniferous of Australia, in having of the septa representing naos trend, however the present specimens differ from that species, in possessing larger and stouter columella. This species resembles the genotype of *Nagatophyllum* in some structures of the corallite but has a different kind of columella. Moreover *Nagatophyllum* possesses septa which lack cavernous structure.

Locality:—All of the specimens are stored in the collection of the Geological Institute, Tokyo University. They came from Ohkubo, Ohta-mura, according to the label in the late Dr. Y. OZAWA's hand writing.



Clisaxophyllum awa MINATO, sp. nov.

figs. c1, c2, d1, d2, d3

Etymology:—The columella of this species is composed of vesiculated tabulae and a distinct median plate in transverse section. The former structure recalls water bubbles. We call such bubbles as awa in Japanese.

Diagnosis:—Almost identical with the genotype of *Echigophyllum*, except for the construction of the columella, which is composed of a median plate and numerous vesiculated tabulae. The septa and dissepimental tissue is identical with the genotype of *Echigophyllum*.

Remarks:—This species was found in the old collection of the Department of Geology and Mineralogy, Hokkaido University, Sapporo. The precise locality of these specimens is unknown. But it evidently came from the Omi-limestone quarry as can be judged from the accompanied label and lithologic character of the specimen.

Meanwhile one imperfect thin section was received from R. TORIYAMA, it is said to have come from a limestone at Kuwabara, Mine-gun, Yamaguchi Prefecture, it is quite identical with this species. The characteristic arrangement of the dissepiments and the axial structure of this species are also recognizable in TORIYAMA's specimen. From his verbal information this species was found in association with a *Fusulinella* fauna at Kuwabara. Another specimen, which is specifically unseparable from this species, now in consideration, is from Hakuundo, Taisyaku plateau, Hiroshima Prefecture.

According to HUZIMOTO, Hakuundo is his locality 30 in his paper on the paleontology of the Taisyaku region, and in association with the coral such Moscovian foraminiferas as *Staffella* sp.

and *Ozawainella* cfr. *angulata* (COLANI) were found.

In examining of OZAWA's old collection one of his specimens, especially that from Serita, Kyowa-mura, Akiyoshidai plateau called the writer's attention. OZAWA named this specimen as *Dibunophyllum rugosum* var. *ofukensis*, but it is not conspecific with his holotype, but it is more referable to *Clisaxophyllum awa* MINATO. This specimen is now in the collection of the geological Institute, Tokyo University.

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193. ON *PALAEOPHARUS*, A LATE TRIASSIC PELECYPOD GENUS.¹⁾

TEIICHI KOBAYASHI AND KOICHIRO ICHIKAWA.

University of Tokyo

三疊紀新世の二枚貝 *Palaeopharus* について: *Palaeopharus* は Ellesmere 島や Bear 島の上部三疊系から報告されている属であるが、この属は本邦にも數地に多産し北方區に特徴的な二枚貝属である事が判つた。本邦三疊紀層の相互の對比と北方區内の對比上重視さるべきものである。又本属には *Unio* に似た興味ある pseudocardinal teeth がある事が判明したので、その二枚貝の系統發達史上の意義について考察した。小林貞一・市川浩一郎

One of the interesting Triassic pelecypods is *Palaeopharus*, known from Ellesmereland and Bear Island. The senior author has noted its occurrence in Japan during his study on the late Triassic *Minetrigonia* fauna of Heki, Kyoto Prefecture, in 1934. Subsequently, it was found by KATAYAMA (1939, p. 140) in the late Triassic Hirabara formation of the Mine group in Yamaguchi Prefecture (Prov. Nagato), and recently in the late Triassic Nabae group of Maizuru district, Kyoto Prefecture (Prov. Tango) by NAKAZAWA (1949, p. 96). Its usual associates are *Minetrigonia* KOBAYASHI and KATAYAMA and a large undescribed "*Gervillia*", which as a whole are the leading indices of the Sakawan stage (ICHIKAWA, 1950, p. 20), which is approximately equivalent to the Carnian.

In the Maizuru collection there are some specimens clearly showing the pseudocardinals, of which little has been known hitherto. All of the illustrated specimens in this paper were collected from the Maizuru district by Mr. K. NAKAZAWA, of Kyoto University, to whom the authors are much obliged. Their thanks are also due to Dr. A. G. COOPER of the U. S. National Museum, Washington, D. C. for sending of a

reprint of KITTL's description and to Dr. K. SUZUKI and Mr. K. OYAMA, of Shigenkagaku Kenkyusho at Tokyo, for palaeontological advice.

Genus *Palaeopharus* KITTL, 1907,
emend.

Synonymic references:—KITTL, 1907, p. 34; BÖHM, 1903, (*Pleurophorus*) p. 45; BÖHM, 1914, (*Pleurophorus*) p. 556.

Genotype:—*Palaeopharus scheii* KITTL, 1907, (subsequent designation by DIENER, 1915, p. 229), Ellesmereland; late Triassic.

Distribution:—Late Triassic (probably Carnian) of Ellesmereland, Bear Island and southwest Japan (Maizuru, Heki and Mine).

Generic Diagnosis:—Similar to *Pleurophorus* in general outline, subterminal umbo, more or less distinct buttress, adductor impressions and external parivincular ligament, but quite different in having pseudocardinals of *Unio* type, in addition to one cardinal tooth behind them in each valve, 2 (or 1) laterals in the right and 1 lateral in the left valve. Furthermore, umbonal sculpture generally concentric, but the surface of the other part is marked by radial or more

1) Read Sept. 20, 1950; received Sept. 15, 1950.

or less chevron-shaped ribs.

Historical Review:—In describing *Palaeopharus scheii* KITTL, he (1907, p. 34) established *Palaeopharus* and referred *Pleurophorus anderssoni* BÖHM and *Pl. perlongus* BÖHM (1903) from Bear Island to it. The genus was then placed in the "Solenopsidae" by him and, later, by DIENER (1915, p. 229), who designated *P. scheii* as the genotype. Noting that the *anderssoni* as well as *perlongus* have dentition similar to that of *Pleurophorus* KING em., BÖHM, (1914, p. 556), on the contrary, synonymized *Palaeopharus* with *Pleurophorus*. Before him, WAAGEN (1907, p. 161) regarded the two Bear Island species as *Pleurophorus*. Nevertheless, it can hardly be overlooked that the peculiar cardinal area of the *anderssoni* illustrated by BÖHM (1903, pl. 4, figs. 5-7) is quite suggestive of pseudocardinal teeth. This point is now clearly demonstrated in the Japanese species, as described below.

Remarks:—*Palaeopharus* is quite similar to *Unio*²⁾ in the presence of pseudocardinal teeth, one on the right and two on the left valve. There is, however, a cardinal tooth behind the pseudocardinal in each valve which, insofar as the authors are aware, is known in none of the Unionidae. Shells provided with Vs or more or less criss-cross sculpture are sometimes met with in the genera of the Unionidae. *Plicatounio* (*Nippononaia*) from the early Cretaceous of Japan

(SUZUKI, 1941, p. 411; 1943, p. 211), *Parreysia* CONRAD (SIMPSON, 1900, p. 340; THIELE, 1935, p. 817) from India, Burma, southern China (?) and tropical Africa and *Proparreysia* PILSBRY (1921, p. 32) from the Late Cretaceous of North America are such examples. This kind of sculpture begins in them in the umbonal region. In *Palaeopharus*, on the other hand, the umbonal sculpture appears to be concentric, while the main part of the shell is covered with chevron-shaped ribs, instead of Vs or criss-cross ribs. In this respect *Palaeopharus* is quite similar to *Unio* (*Loxopleurus*) *belliplicatus* MEEK (1876, p. 515; WHITE, 1883, p. 430, pl. 6, figs. 1-3, etc.) from the late Cretaceous Bear River Laramie Beds, *Megalonoidea* MACNEIL (1935 p. 13, pl. 4, 5) (genotype: *M. porcata* MACNEIL, 1935) from the Miocene of Texas, and the recent *Amblema* RAFINESQUE (THIELE, 1935, p. 827) (genotype: *A. costata* RAFINESQUE). The first species has, however, an unioid outline, although it is said to be very variable, and its hinge structure is typical of *Unio* according to WHITE (op. cit.). The latter two genera is quite different from *Palaeopharus* in the shorter and rounded outline, stronger ribs and the dentition of *Unio* type.

As described below, *Pal. maizurensis* n. sp. is similar to *Pal. anderssoni* in respect to the peculiar ornamentation, but this peculiarity is somewhat obscure in *Pal. scheii* and also in *Pal. perlongus*, although their radial ornamentation is not the normal one originating from the beak.

Some Triassic unioids are reported from the late Triassic Chinle, Dockum and Shinarump formations of the Mid-Continent area of the United States and the Newark formation of Massachusetts and Pennsylvania (references in HENDERSON, 1935). It is interesting to note that

2) According to KENNARD (1941 p. 273), the genotype of *Unio* RETZIUS, 1788, is *U. margaritifera* LINNÉ designated by TURTON in 1831 and *Unio* must replace *Margaritifera* SCHUMACHER, 1816, and *Unio* itself is to be replaced by *Lymnium* OKEN, 1815 (genotype *L. pictorum* (LINNÉ)). The name *Unio*, however, is used here in place of *Lymnium*, because such a large change gives rise a confusion.

many of them bear radial or some other sculpture at least on the umbonal region. PILSBRY (1921) is of opinion that they are related to the South American Hyriinae in Mutelidae, for example, *Diplodon*. Although the hinge structure of these American species is not known in detail, it is evident that none of them bears either the sculptures or outline seen in *Palaeopharus*. *Unio grimmeri* (BITTNER) WAAGEN (1907, p. 36, pl. 31, figs. 14-16) is the only species so far known from the European Triassic. It has the hinge nature of unioid type, but its general form looks like *Trigonodus* with smooth surface. Therefore, it is by no means related to *Palaeopharus*. Several *Unio* and *Unionella* were described from the Late Triassic of New South Wales (ETHERIDGE, 1888), but the hinge structure of the Australian "*Unio*" is unknown to the authors, while the *Unionella* has the outline like *Trigonodus* and further lack any lateral tooth. *Unio karoensis* COX (1932 p. 630, pl. 40, figs. 1-3b) from the Upper Triassic? Manda Beds (uppermost subdivision of Karroo system in Ruhuhu district) in Africa cannot be compared with *Palaeopharus* since nothing is known of the hinge area of the African species and its surface is smooth except for concentric growth-lines. Among *Pleurophorus* radial ornaments are frequently met with, but not any chevron-shaped ribs.

In conclusion, it is noted that *Palaeopharus* is most probably a transitional form from the Pleurophoridae to the Unionidae, and it is suggested that the Unionidae characterized by pseudocardinals may be polyphyletic, since the Trigoniidae s. l., including *Trigonodus* in the Cardiniidae generally have been thought to be ancestral to the Unionidae. *Palaeopharus* therefore demands establishment of a new family, but its

denomination and characterization are deferred until more is learned of the genotype of *Palaeopharus*, because the discussion given above are based chiefly upon *maizurensis* and *anderssoni*.

Palaeopharus maizurensis KOBAYASHI
and ICHIKAWA, new species.

Plate 1, Figures 1-6.

Description.:—Shell equivalve, considerably elongate posteriorly and a little compressed, notably in the inner side of the ventral margin; the maximum length lying between the middle and the umbonal two-thirds of the height. Anterior margin very short, moderately curved; ventral margin nearly parallel to the hinge margin, but somewhat arcuate and gradually ascending posteriorly; posterior margin more or less semi-circular; dorsal margin practically straight and long. Umbo located at the point about one-fourth or one-fifth the length from the anterior end and scarcely projected beyond the dorsal margin. Right valve having one cardinal tooth and one cardinal groove, the latter being long, narrow and oblique; pseudocardinal below the cardinal large, subtrapezoidal, minutely crenulated and bounded by a groove on each side; anterior one triangular and profound, while the posterior one is shallow and indistinct; two long posterior lateral teeth, the lower one of which is very narrow and may be regarded as a marginal thickening of the lateral groove, extending to a point a little anterior to the posterior adductor impression and anteriorly conglutinated into one at a point below the posterior end of the ligament area. Left valve provided with a cardinal tooth and a distinct cardinal groove below it; this tooth as narrow and long, but not so prominent, as that of the right valve;

two narrow and indistinct pseudocardinals in front of it separated from each other by a broadly spaced shallow pseudocardinal groove; in addition, it has a posterior lateral tooth and a lateral groove. Ligament external, parivincular; ligament area beginning below the umbo, about one-third as long as the shell-length. Adductor scars nearly equal in size and both suboval in outline; anterior one located at about the mid-height near the anterior extremity, strongly impressed and bounded posteriorly by a short, strong and subvertical buttress; posterior one a little larger, lying at about the posterior one-fifth of the shell-length near the dorsal margin. A small pedal retractor scar below the pseudocardinals deep. Pallial line indistinct.

Sculpture of the umbonal region not well known, but the remaining part is distinctly ornamented with numerous ribs, a little more than twenty in number; they are closely set, chevron-shaped, weak in front but stronger and more distinct posteriorly; concentric striae, on the contrary, relatively distinct on the anterior and mesial parts, forming nodes at their intersection with the oblique ribs. The top angle of the chevron becomes wider upward, till it attains almost 180 degrees near the umbo.

Observation;—While the elongated paratype (Reg. no. 5302) (Pl. 1, Figs. 4 a-b) is 50 mm long and 11 mm high, the right valve of the holotype (Reg. no. 5301) (Pl. 1, Fig. 1a) is 13.8 mm high and no less than 33 mm long. It appears to be a general tendency for the shell of this species to elongate posteriorly through growth. The outline is, however, secondarily deformed in not a small amount in the material before hand. In the holotype, for example, the position of umbo is different in the two valves.

More precisely, the umbo is shifted anteriorly, as in *P. anderssoni* BÖHM, on the right valve, but not on the left. Glancing over many specimens, the length of the holotype is thought to be reduced secondarily, while the above mentioned paratype is a little depressed dorso ventrally. The anterior adductor impression is elongated antero-ventrally in most specimens, including the left valve of the holotype, whereas it is more or less extended postero-ventrally on the right valve of the holotype. Its outline is transversally ovate in some others. The hinge area is also deformed in various ways. The pseudocardinal is generally not well preserved and represented mostly by indistinct undulations. Thus the deformation is quite remarkable, as can be recognized not only in this species, but in *Lima naumannii* KOBAYASHI & ICHIKAWA, *Minetrigonia hegiensis* (SAEKI) and other associates in the same localities. Therefore, eliminating the secondary differences, it was found that all specimens of *Palaeopharus* collected from the Maizuru area belong most probably to one species.

This species has the chevron sculpture similar to that of *P. anderssoni*, but it is not quite certain whether or not, the umbonal sculpture is concentric, as in *anderssoni*. Though the aspect of the chevron sculpture near the anterior margin is unknown, the posterior oblique sculpture is somewhat well impressed on the internal mould, or the so-called "subinternal mould" (NEWELL, 1937, p. 17).

Comparison:—The nearest ally to *Pal. maizurensis* is *Pleurophorus anderssoni* BÖHM (1903, p. 45, pl. 4, figs. 4-7, 9, 10), although there are some differences. In the former the anterior side protrudes a little more than in the latter; the maximum length in the former lies between

the mid-height and the umbonal two-thirds, instead of at about the umbonal three-fourths in the latter, the ventral margin being more arcuate in the former. The anterior adductor impression is suboval in the former, but appears more rounded in the latter, insofar as can be seen in its illustration, but this difference may be discounted because it is said to be "spitzeiförmig" in its text. The posterior ridge on the surface noted in the latter is, though discernible in some specimens (for example Pl. 1, Fig. 5), generally obscure in the former. The latter possesses one cardinal tooth on the right valve and one cardinal groove on the left. In the former, on the other hand, a cardinal tooth is, though much reduced than on the right valve, recognizable on the left. Nothing definite can be said of the pseudocardinal in the latter species, but the weak undulations of the hinge-area illustrated by BÖHM in front of the cardinal tooth or groove resemble the aspect of the corresponding area seen in the ill-preserved specimens of *maizurensis*. Therefore, there is no essential difference between the two species with respect to the dentition, although the pseudocardinal is located more anteriorly in the former than in the latter.

The two species are different from *Pl. perlongus* BÖHM (1903, p. 46, pl. 4, fig. 1-3, 8) from Bear Island in the less terminal umbo and from *Pal. scheii* KITTL (1907 p. 35, pl. 3, figs. 1-4) from Ellesmere Island in the more anterior umbo. Whether the latter two species are included in the same genus with the former two is uncertain, although it is quite evident that the former two are congeneric. The present study is based mainly on the former two species. A restudy of the genotype *scheii* based on fresh materials, is required to say any-

thing more of this interesting genus.

*Formations and Localities*³⁾:—Nabae group of Maizuru district, Kyoto and Fukui Prefectures (Provinces of Tango and Wakasa), N_1 - N_3 formations⁴⁾
 N_3 Formation:

1. Nishi-mimatsu, Aonogo Village, Ooi Gun, Fukui Pref. rare
 2. South of Kichisaka, Shiraku, City of Maizuru, Kyoto Pref. common
 3. Terada, Ikenouchi, City of Maizuru rare
 4. Shindo, Higashiyata Village, Ikaruga Gun, Kyoto Pref. abundant
- N_2 Formation:

5. Near Kongoin, Kabara, Shiraku, City of Maizuru common
 6. Miuchi, Higashiyata Village, Ikaruga Gun, Kyoto Pref. common
 7. East of Sugitani, Higashiyata Village, ditto rare
- N_1 Formation:

8. West of Uene, Ikenouchi Village, City of Maizuru rare

A few specimens closely resembling this species were procured from the Heki formation of Yakuno district, Kyoto Prefecture (Prov. Tamba)⁵⁾.

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Explanation of Plate 1

Palaeopharus maizurensis KOBAYASHI and ICHIKAWA, new species.

Figs. 1 a-b An internal mould of the holotype. (Reg. no. 5301) × 1.

Fig. 2. A clay-cast taken from the external mould of the holotype, showing the sculpture. × 1.

Figs. 3 a-b. A clay-cast taken from the internal mould of the holotype, showing the hinge structure × 3.5. The left valve in Fig. 3a is not vertically placed and is accordingly obscured.

Figs. 4 a-b. An internal mould (4a) and its clay-cast (4b), the paratype. (Reg. no. 5302) × 1.

Figs. 5 a-c. Three views of the internal mould of a bivalved specimen showing distinct posterior ridges. (Reg. no. 5303) × 1.

Fig. 6. An internal mould of a right valve showing the chevron-shaped sculpture. (Reg. no. 5304) × 3.

(All specimens illustrated here came from Late Triassic Nabae group of the Maizuru district, and are now deposited in the Geological Institute, University of Tokyo.)

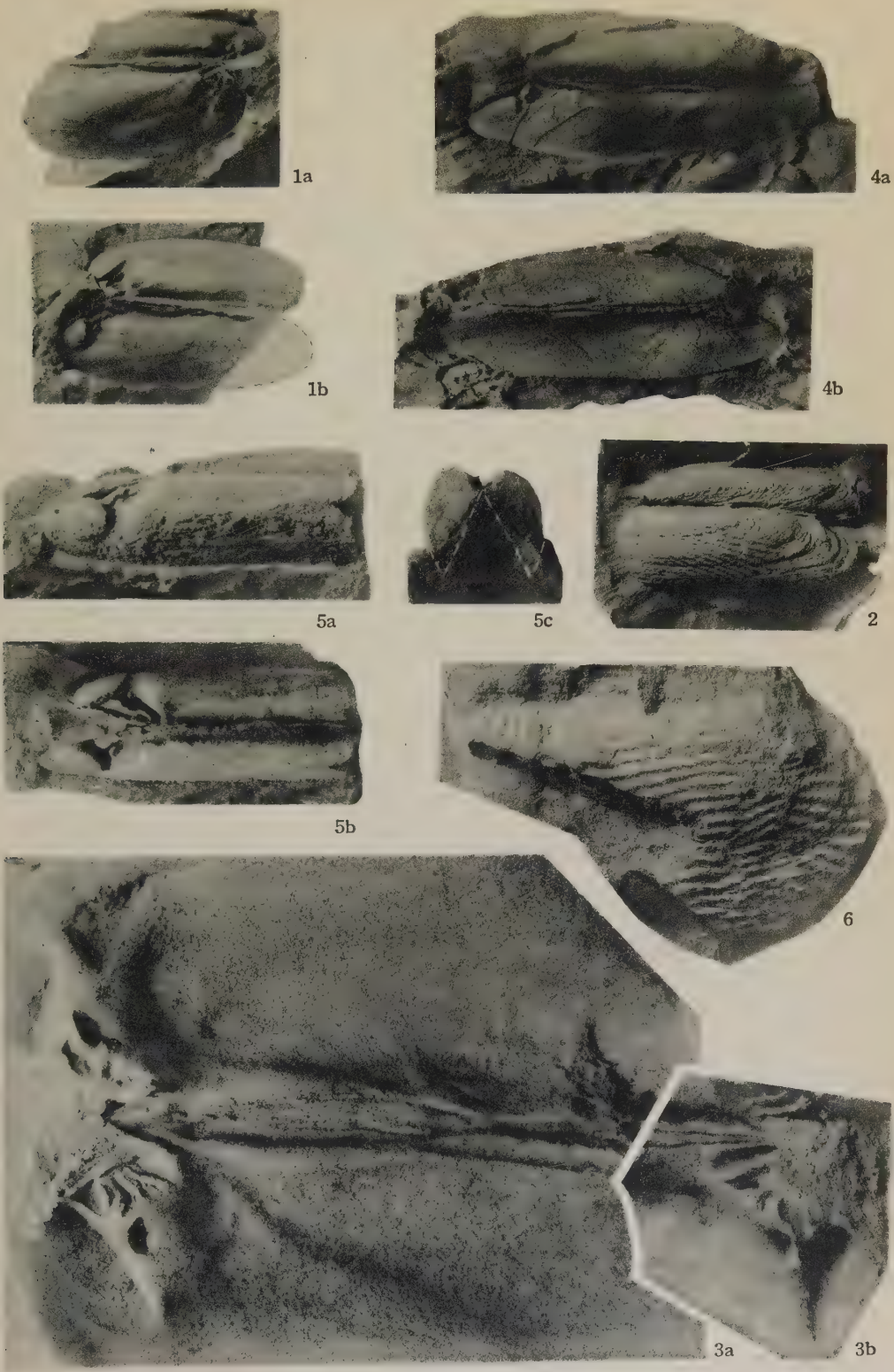


Photo. by UEKI; retouched by SUZUKI

194. PALEOGENE MOLLUSCA FROM SOUTH NAGANO-KEN¹⁾

TOKIO SHIKAMA

Yokohama National University, Kamakura

長野縣南部古第三紀貝化石：長野縣南部下伊那郡八重河内村梅平及同郡和田村和田産貝化石は、從來白堊紀又は中新世とされていたが、著者の採集品に依り漸新世である事を確めた。鹿間時夫

The Paleozoic Chichibu system and lower Cretaceous formation occupy a small area in the neighborhood of Misakubo, Aokuzure Pass and Todai on the east side of the median dislocation line which runs nearly from NNE to SSW in the southern part of Nagano Prefecture. From the lower Cretaceous or Misakubo formation, I. YOSHIMURA and T. TATSUMI (1938) reported *Trigonia hokkaidoana*, *T. dilapsa*, *Anthomya japonica*, besides other molluscs and plant remains. The *Ostrea* remains found on the southern side of Aokuzure Pass is ascribed by T. MATSUMOTO to the upper Monobegawa age.

The Wada formation in the environs of Wada, Wada-mura, Umedaira and Yaegôchi in Yaegôchi-mura, all in Shimoina-gun along the eastern side of the median dislocation line above referred to, is fossiliferous especially between Todai at the north and Aokuzure at the south of the present area. In 1924, S. NAKAMURA (1924) referred this formation to the Cretaceous, while in 1938, K. TAKIMOTO (1938), based upon *Cardium*, *Tellina*, *Lima*, *Mya*, *Modiolus*, *Tapes*, *Yoldia*, *Dentalium*, an echinoid and *Quercus*, ascribed its age to the Miocene with some doubt. More recently R. SUGIYAMA (1935) surveyed the Wada area and the fossils he collected were identified by K. KANEHARA as, *Linthia*

cf. *praenipponica* NAGAO, *Pecten* cf. *ashiyaensis* NAGAO, *Crenella subnipponica* NAGAO, *C. subformicata* NAGAO, *Lucina* sp., *Tellina equideclivis* NAGAO, *Siliqua brevis* (NAGAO), *Venericardia laxata* YOKOYAMA, *Thracia* sp., *Panope* sp., *Turritella infralirata* NAGAO, *Oxyrhina hastalis* AGASSIZ, *Quercus* sp., besides others; these were claimed to be uppermost Cretaceous or lowest Tertiary in age.

From the above it may be noticed that the geological age of the Wada formation remains unsettled, being ascribed by authors to the Cretaceous, lowest Tertiary and questionably also to the Miocene.

Since 1947, the writer several times visited the fossil localities of the Wada formation and made a survey of the region. This paper deals primarily with the paleontological results in the view of settling the geological age of the formation, as it has intimate bearing on the age of the median dislocation line in southern Nagano Prefecture.

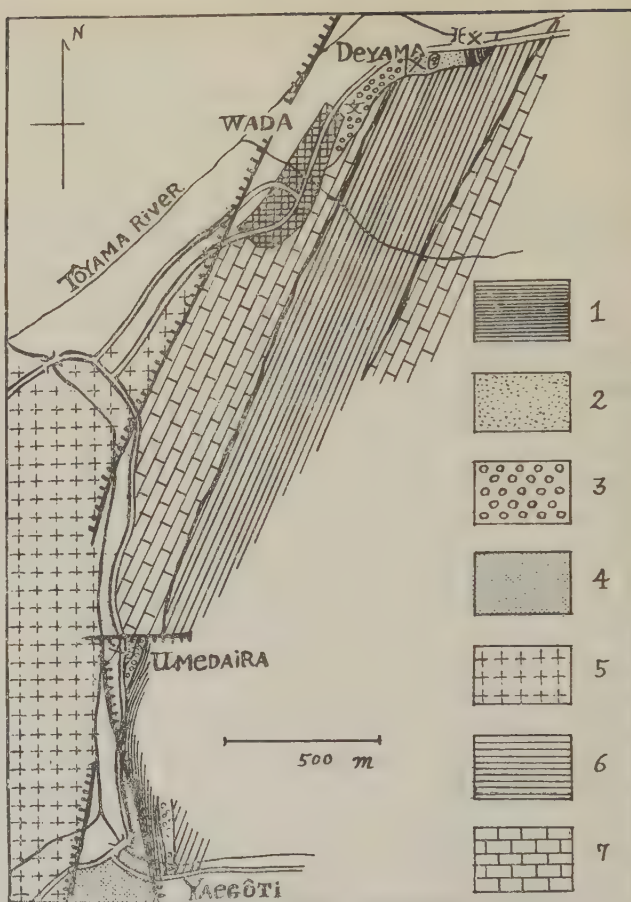
In the environs of a bridge, about 400 meters east of the Wada Middle School, a Paleozoic chert formation is observed to be overlain with a series of gray colored rocks trending N20°E and dipping 70°NE. These gray colored rocks comprise the following beds in ascending order.

1) Read Dec. 2, 1950; received Oct. 11, 1950.

1. Black brecciated slate with angular chert pebbles: 10 m in thickness.
2. Grey colored conglomerate with well rounded chert pebbles: 4 m in thickness.
3. Grey sandstone with fossils: 40 m in thickness.
4. Gray colored, hard siliceous sandstone: 30 m in thickness.

From the bed 3, *Trigonia* sp., *Estheria* sp. and some plant remains were discovered. These fossils betray the Cretaceous age of that bed. Deyama in the northern part of the annexed geological map, is a talus-like mountain slope comprising gray colored sandstone and conglomerate and probably overlies the bed 4 above mentioned. From this sandstone many fossils were found. A small outcrop of gray sandstone along a roadside at Umedaira contains some well preserved fossils: this sandstone is underlain by conglomerate and black slate. At Yae-gôchi, a 60 m thick hard gray to black shale overlies a 10 m thick gray to black colored basal conglomerate; this basal conglomerate lies on a Paleozoic limestone but has no fossils.

The Wada formation, the type locality of which is Deyama near the Wada Middle School, is distributed in the environs of Deyama at the north and Umedaira at the south, of the area surveyed. This formation has been cut by the median dislocation line, which



Geological Map of the Wada Area

1. Slate and slaty rocks. 2. Sandstone. 3. Conglomerate. 4. Ultrabasic rocks. 5. Mylonite. 6. Paleozoic chert. 7. Paleozoic limestone. 1, 2 and 3 belong to the Wade formation and also to unknown Mesozoic formation. The fault between the mylonite and Paleozoic rocks is the median dislocation line in south Nagano Prefecture.

according to T. KOBAYASHI, also dislocated the Paleogene formations of northern Kyushu. Hence, it is worthy of note that the fauna of Wada is allied to that of the Ashiya group in northern Kyushu.

The fossil molluscs collected by the writer were identified by K. HATAI to consist of *Chlamys* cf. *ashiyaensis*

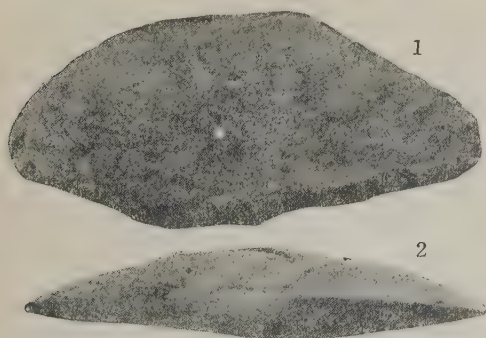
(NAGAO), *Lima* cf. *goliath* SOWERBY (NAGAO, 1928), *Macrocallista matsuraensis* NAGAO, *Venericardia subnipponica* NAGAO, *Tellina umedairensis* SHIKAMA, n. sp., *Turritella* cf. *infralirata* NAGAO, *Yoldia* cf. *scaphoides* NAGAO, and an *Arca* resembling *Arca sakamizuensis* HATAI and NISIYAMA (MS) (= *Arca* sp. of T. NAGAO, 1928).

All of the above mentioned fossils are characteristic of the Ashiya group of northern Kyushu, which is therefore, considered a correlative of the present fauna. The age of the fauna in question is Oligocene like that of the Ashiya, but to what part of the Oligocene it belongs is a problem yet to be settled.

Tellina umedairensis SHIKAMA, n. sp.

Text-figs. 1, 2.

Shell not large, 62 mm long, 31 mm high and 12 mm thick, transversely elongate with ventral margin fractured. Anterior and posterior sides narrowly rounded, ventral broad and nearly straight; antero-dorsal margin straight, moderately inclined, passing abruptly into anterior margin, postero-dorsal border



Text-figs. 1, 2. *Tellina umedairensis* SHIKAMA, n. sp. Natural size. Note the strong antero-dorsal angulation and extremely transverse shell outline.

arched, nearly straight, then abruptly descending to rounded posterior side. Beaks not much swollen, flat, incurved and pointed. Surface provided with not very strong concentric growth lines, periodically fine and strong. Inequivalve, the right valve being deeper than left.

Remarks:—This shell more or less resembles *Tellina lutea venulosa* SCHRENCK, a common Recent species of northern Japan and an abundant fossil in the Pleistocene formations in the Kwanto region of Central Japan, but can be distinguished therefrom by the more prominent anterior angulation, more steeply inclined antero-dorsal slope, longer shell in relation to height.

Occurrence:—Umedaira in Yaegôchimura, Shimoina-gun, Nagano-Prefecture.

Further, S. NISIYAMA identified *Linthia* cf. *praenipponica* NAGAO and *Echinolampus* (*Miolampus*) sp. in the collection. The former mentioned species is rather common in the Wada formation at Deyama and its type locality is in the Yamaga bed of the Ashiya group of northern Kyushu. The latter genus ranges from Eocene to Recent, but is particularly common in the Miocene. Plant fossils are rather poor in preservation, and among the ones collected the writer was able to identify only *Quercus* sp. and *Ficus* (?) sp.

From faunal evidence, the writer regards the age of the Wada formation to be Oligocene and also to be a correlative of the Ashiya group in northern Kyushu.

The writer is indebted to Dr. K. HATAI and Mr. S. NISIYAMA of the Institute of Geology and Paleontology, Tohoku University, Sendai, for identifying the fossils in concern.

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195. *SEQUOIA* FROM SOUTH MANCHURIA OLDEST IN THE WORLD¹⁾

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南滿洲熱河産世界最古の *Sequoia*: 南滿洲熱河省凌源縣大申房子, 奶子溝の *Lycoptera* 層から出た化石を "*Sequoia jeholensis*" と命名した。*Lycoptera* は高井冬二氏によると, 上部又は中部デユラ紀, との事であるから, 此 *Sequoia* も中部又は上部デユラ紀のものと見なければならぬ。而して佛の上部デユラ紀から疑問の *Sequoia* が報告されて居るが, 其他にはデユラ紀又はそれ以前の地層から出た *Sequoia* の報告はない。それで今回の此 "*Sequoia*" は確實な世界最古のものと見られる。是は現生 *Sequoia sempervirens* ENDL. に非常によく似て居てそれと區別が出来ない程であるから其祖先と考へられる。遠藤誠道

This report is based on a branchlet of a fossil *Sequoia* from the *Lycoptera* bed of Lingyuan, Jehol, in South Manchuria. It is probably the oldest known species of *Sequoia* in the world. According to Dr. F. TAKAI (1943) the fossil bearing bed is upper or middle Jurassic in age from the evidence afforded by the *Lycoperid* fishes thus the present record is the oldest one known with certainty. Its description now follows:

Sequoia jeholensis ENDO, n. sp.

, Plate 2, figs. 1, 2.

Description:—Branchlet with one spray, about 15 cm. long, and 1 cm. \pm wide. Leaves with two types: Scaly and ordinary; ordinary leaves with decurrent base, sessile, spirally arranged in two lines, having twisted base, linear or lance-shaped, and bluntly mucronate at apex, about 10 mm. long, and 1 mm \pm wide, upper surface slightly furrowed along the midrib; Scaly leaves, which occurs in growth of early spring and at the base of lateral shoot, spirally arranged, triangular shaped, with decurrent base, midrib distinct 1 mm \pm long and

wide. (IGPS coll. cat. no. 60980).

Remarks:—The present material is quite identical with the branchlet of the existing *Sequoia sempervirens*, to which it may be a direct ancestor.

The oldest known *Sequoia* remains, hitherto reported, is from the upper Jurassic of the Boulogne district. This species originally described as *Sequoia problematica* FLICHE and ZEILLER (1904) is founded on a small elliptical cone from the said district but its relationship to *Sequoia* has not been demonstrated. *Sequoia* remains are very abundant in Cretaceous rocks and among them, *Sequoia heterophylla* VELENOVSKY (1885) from the Lower Cretaceous of Bohemia shows little resemblance to the present material in the feature of foliated branchlet.

The present material occurs with *Lycoptera davidi* (SAUVAGE), *Schizolepis Moelleri* SEWARD and *Estheria* sp., on the same slab of shale and on its association, *Strobilites Milleri* SEWARD, *Czekanowskian igida* HEER, *Schizolepis jeholensis* YABE and ENDO (1934), *Potamogeton jeholensis* YABE and ENDO

1) Read Dec. 2, 1950; received Oct. 19, 1950.

(1935), *Onychiopsis* sp, *Cladophlebis* sp, *Cyclopteris* sp, and *Selaginellites* n. sp. etc.

It is expected that the discovery of *Sequoia jeholensis* will throw additional light to the knowledge of the history of the genus.

Finally the present writer wishes to express his sincere thanks to Professor R. W. CHANEY of California University for his valuable advice and suggestions during the present study.

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Explanation of Plate 2

Fig. 1. *Sequoia jeholensis* ENDO, n. sp. $\times 1$, from the *Lycoptera* bed of Lingyuan, Jehol, South Manchuria.

Fig. 2. The same specimen, enlarged twice to show details.

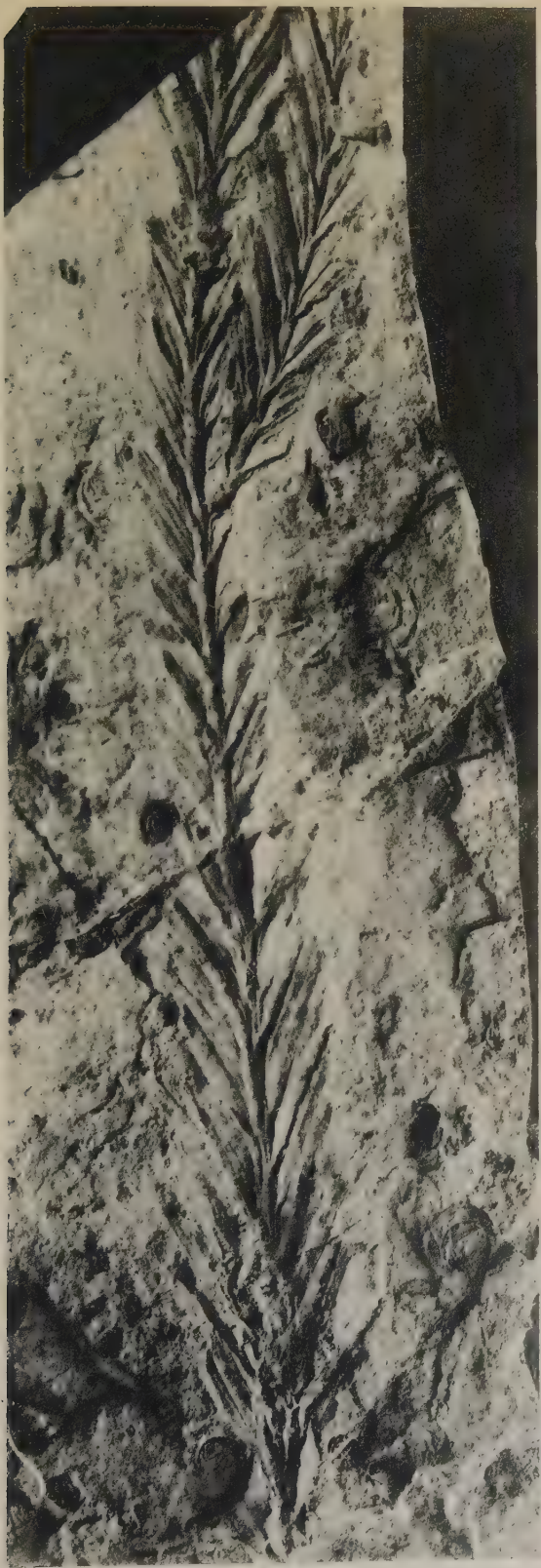


Figure 1.

Figure 2.

Sequoia jeholensis ENDO.

Locality: The *Lycoptera* bed of
Lingyuan, Jehol, South Manchuria.

196. A NOTE ON THE PACHYDISCINAE, A CRETACEOUS AMMONITE-GROUP¹⁾

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白堊紀菊石類 Pachydiscinae について：白堊紀の菊石類中重要なものの一つである Pachydiscinae についての研究の概報である。1. Desmoceratidae 中の亞科としての特性を、とくにその個體發達上の特徴から明らかにした。2. 本亞科中の屬の分類を、日本産の材料を中心として再検討し、(1) *Lewesiceras*, (2) *Anapachydiscus*, (3) *Eupachydiscus*, (4) *Canadoceras*, (5) *Pachydiscus*, (6) *Pachydiscus* (*Neodesmoceras*), (7) *Menuites* を修正再定義した。3. 日本列島白堊系産の種の分類を表示した。4. その諸種類の層序的産出についての知識を要約し、上部白堊系の時代的區分と對比上重要なことを具體的に示した。(なお正確な記載は後日刊行する豫定である。また本概報に加えて日本産の諸種類の特性を摘記したものは“日本産 Pachydiscinae の概要”と題し和文で九大理學部研究報告地質學の部 2 卷 1 號 1947 に發表してある。) 松本達郎

Introduction:—The subfamily Pachydiscinae, which belong to the large family Desmoceratidae, form one of the important Cretaceous ammonite-groups. Many fossils of the subfamily have been yielded from the Neocretaceous of Japan. This paper is intended to describe concisely the notable results from my research on the Japanese material, the full-description of the species, however, being reserved until future time.

A remark on the subfamily:—Fossils belonging to the ammonite-group Pachydiscinae have been yielded from the

Upper Cretaceous of various countries, and have been studied by many paleontologists. Among many works, L. F. SPATH's paper in 1922 should be noted, for he classified the group and established many new genera. His classification, however, seems to show an idea of phylogenetic relation, and the definition of each genus is ambiguous. Nevertheless, most of the generic names proposed on that occasion is valid and must be used with a necessary redefinition, because he pointed out the genotype species in the establishment of the new genera. Concerning the materials from the Japanese Cretaceous, there is a plan of classification proposed by H. YABE and S. SHIMIZU (1926), which is independent from SPATH's plan.

I have observed the additional materials examining especially on the ontogenetic development, which had been neglected by the previous authors. The results obtained on the general subject of the group are as follows:

(1) Various species and genera of the Pachydiscids yielded from the Japanese Cretaceous have many common charac-

1) Read Oct. 23, 1943; received Oct. 26, 1950. "A note on the Japanese Pachydiscinae" was published in Japanese on the *Reports from Department of Geology, Faculty of Science, Kyushu University* vol. 2, no. 1, Oct. 1947. But there was a good advice from the foreign researchers that the publication in English may help the progress of the international knowledge. This paper replies the request, although it is an abstract from a more complete monographic description (MS), the publication of which is difficult under our present circumstances.

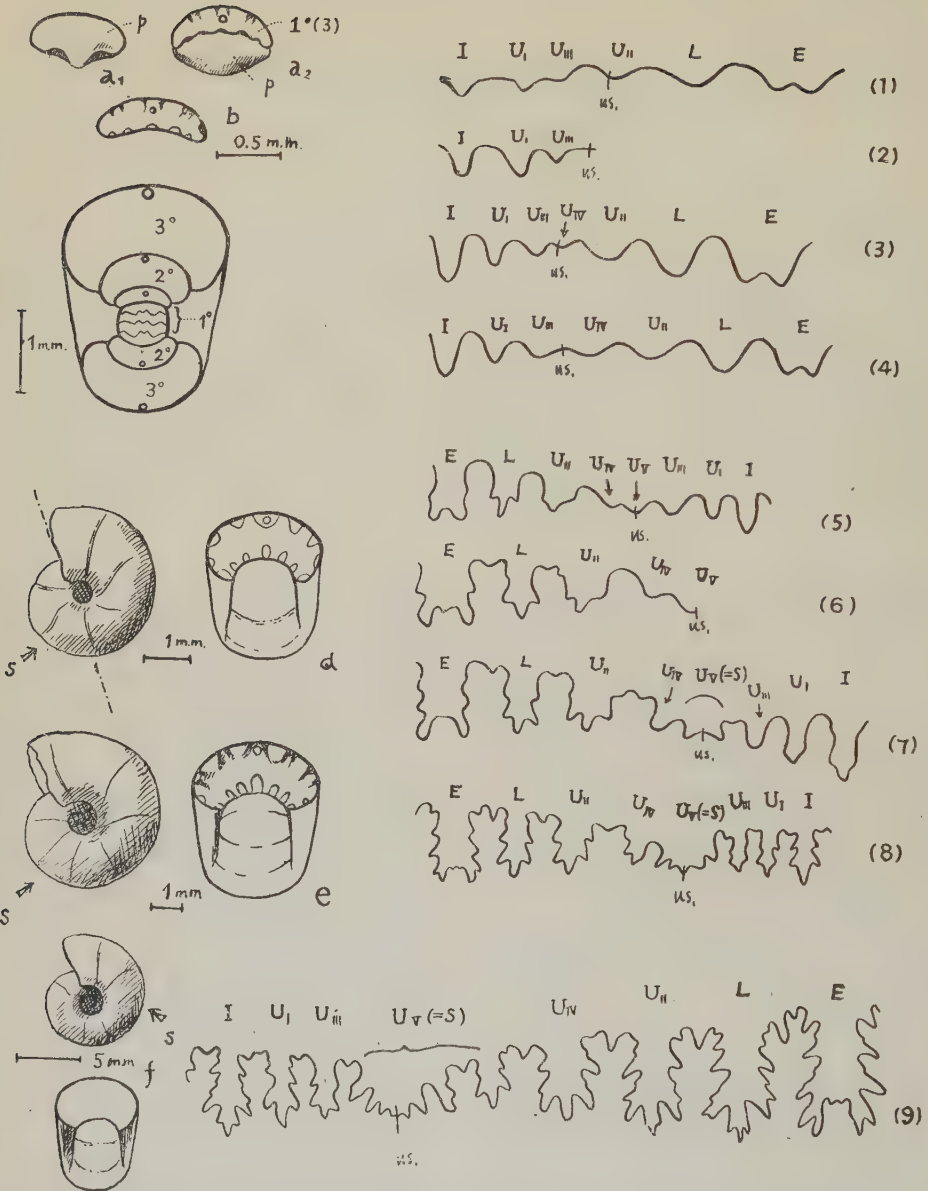


Fig. 1 Immature shell of *Anapachydiscus* (*A. yezoensis* (YABE), No. H. 2463 of Dept. Geol. Kyushu Univ. from loc. N-182f, zone Mh6 along the middle-valley of the Naibuchi, South Saghalien).

a. Protoconch (p) and an apertural view of the 3rd chamber of the 1st volution (1° (3)); b. Apertural view of the late chamber in the 1st volution; c. Transverse section of the immature shell, ranging to the 3rd volution (3°), cut along the dotted line in d; d. Early stage of the 4th volution; e. The stage 3/4 volution later than d; f. The stage about 1 volution later than e; g. Development suture-lines in the early stage: (1) the 3rd suture-line, (2) the middle stage of the 1st volution. (3) the late stage of the 1st volution (corresponding to fig. b), (4) the early stage of the 2nd volution, (5) the late stage of the 2nd volution, (6) the early stage of the 3rd volution, (7) the late stage of the 3rd volution (corresponding to mark s in fig. d), (8) the stage corresponding to mark s in fig. e, and (9) the stage corresponding to mark s in fig. f.

ters and connections one with another. The subject becomes much more certain when we examine the ontogeny on each of them. Thus they should be grouped in one subfamily, the Pachydiscinae.

(2) The shell of the early stage in ontogeny is very similar among the various forms. It is of the desmoceroid character, i. e. involute, narrowly umbilicated, consisting of much inflated and depressed whorls, and ornamented with considerably frequent constrictions; the suture line begins from [I, U_I, U_{II}, L, E], and is developed into [I, U_I, U_{III}, U_V (=S), U_{IV}, U_{II}, L, E], consisting elements of desmoceroid-type. (fig. 1)

From this fact, I am lead to the conclusion that the subfamily Pachydiscinae belong clearly to the family Desmoceratidae, and that contrary to the opinion of SPATH and others, the resemblance between some of the Pachydiscinae and the Puzosinae is rather superficial, although the Puzosinae form an offshoot within the large family Desmoceratidae.

(3) The generic and the specific characters are developed from a certain stage in the course of ontogeny. Their appearance varies in degree of intensity as well as in date of stage (i. e. early or late). In some cases the rapid development of new character is found, but in some other cases the character develops gradually and slowly.

Often we find a resemblance between the shell of a certain growth-stage in one species or genus and that of a different growth-stage in another species or genus. The fact is important as to the relation between the forms concerned, and it warns us, at the same time, that the specimens must be identified carefully considering the stage in ontogenetic development.

In the full-grown stage, there are so

many kinds of characters presented either in shell-form and in ornamentation by various species that I feel it difficult to state in one word the characteristics of the subfamily. The inflated and large whorl provided with coarse radial ribs and umbilical nodes may be a typical one, while the compressed whorl and numerous ribs are found in some forms²⁾ and nodes and ribs are partly or wholly obsolete in some other forms. Nevertheless, the suture-line follows a comparatively constant pattern, except for a detailed feature.

Notes on the important genera:—The followings are the characteristics and some remarks on the important genera of the Pachydiscinae.

1. *Lewesiceras* SPATH (1939) [Genotype *Ammonites peramplus* MANTELL].

The genus is said to have a suture-line which is less complicated than that in the usual Pachydiscids. Accordingly I feel necessity to examine the material comparing it with others. No specimens belonging to the genus, however, has been discovered from Japan.

The group of *Ammonites peramplus* has long been called *Pachydiscus* s. str. However, as SPATH (1939) pointed out, the genotype of the genus *Pachydiscus* ZITTEL 1884 was defined as *Ammonites neubergicus* v. HAUER by A. DE GROS-SOUVRE 1893. As the two species belong to different genera respectively, a new generic name is necessary for the group of "*Pachydiscus*" *peramplus*, to which *Lewesiceras* should be adopted according to SPATH's proposal.

This genus is the earliest representative of the subfamily and is yielded from

- 2) The puzosoid aspect of ornamentation and shell form appears in some of the full-grown stage, but the feature is a phenomenon of convergence.

the Turonian of Europe.

2. *Anapachydiscus* YABE and SHIMIZU (1926) [Genotype *Parapachydiscus fascicostatus* YABE]

This genus is a normal or a less specialized representative of the subfamily in that the shell-form characterizing the early growth-stage in the Pachydiscinae is comparative well presented also in the late growth-stage; Shell oligogyral, sublatumbilicate (umb. 20–30% of diam.), consisting of inflated and depressed whorls. Ornamentation developed from early in the middle stage, consists of umbilical tubercles and numerous radial costae. The costae is not generally strong except in an adult stage of certain species (*A. yezoensis*, *A. subtililobatus*). Constrictions later than middle stage are not strong.

This genus is represented by a group of species from Japan, among which *A. fascicostatus* (YABE) is the typical one. Accordingly the generic name *Anapachydiscus* proposed by YABE and SHIMIZU (1926) should be adopted with a redefinition. *Neopachydiscus* which was proposed for a single species "*P.*" *naumanni* YOKOYAMA, is, I think, unnecessary, because the species *naumanni* is provided with characters which are referable to the genus *Anapachydiscus* here defined.

The genus probably includes many species from the Pacific region and possibly some of the European form, but I cannot state exactly whether the group of *Pachydiscus colligatus* (BINKHORST) is referable to this genus or the resemblance is superficial, for I have had yet no opportunity to examine the European material.

3. *Eupachydiscus* SPATH (1921), emend. [Genotype *Ammonites isculensis* REDTENBACHER].

Shell-form in early stage is characterized by a depressed and inflated whorl,

but in the late stage the height of the whorl increases in growth, resulting in a subcircular whorl which is almost as high as broad. Degree of involution and size of umbilicus are similar to those in *Anapachydiscus*. Ornamentation of the shell resembles that of *Anapachydiscus* only during a short period of ontogenetic development, and coarsely distributed, strong costae begin to appear, which become more prominent in the adult stage. Some of the ribs, usually those situated along the constriction, are especially strong and the tubercles connected with them are also prominent. Constrictions well developed.

Genus *Eupachydiscus* was established by SPATH on *Ammonites isculensis* REDTENBACHER as genotype, but his definition was rather indefinite, only stating that it is proposed for the forms with increasing strength and number of ornamentation, which are derived from the Coniacian stock of *Nowakites*. The genotype species seems to have been neglected from the ontogenetic examination, and I myself have no opportunity of examining the European material. Nevertheless, in the adult stage, *Amm. isculensis* is very similar to "*Pachydiscus*" *haradai* JIMBO from Japan, and SPATH himself referred "*P.*" *haradai* to his *Eupachydiscus* through the examination of specimens. Accordingly there seems to be no objection to state that "*P.*" *haradai* should be regarded as belonging to the same genus to which *Amm. isculensis* belongs. And here the genus is redefined depending chiefly on the well-studied Japanese material. For the group of "*P.*" *haradai* the generic name, *Mesopachydiscus*, was once proposed by YABE and SHIMIZU (1926). Following, however, the rule of nomenclature, *Eupachydiscus* must be adopted instead of *Mesopachydiscus*, so far as our pre-

sent knowledge confirms that the two species under consideration should belong to the same genus.

4. *Canadoceras* SPATH (1922) emend. [Genotype *Ammonites newberryanus* MEEK]

The ontogenetic development of shell-form is similar to that in *Eupachydiscus*, but the increase in the height of the whorl during growth is conspicuous, resulting in a compressed whorl in later age of growth and the shell is not much involute, being provided with an umbilicus somewhat larger than the preceding genera (30% of diameter or more). Shell at first smooth and only constricted, in the next stage of growth a strong rib appears along the constriction, the rib being prominent at the umbilical shoulder forming a tubercle, and weak ribs which do not attain the umbilical margin are intercalated; later than the middle-stage the constrictions and the tuberculated long ribs become stronger and the inserted ribs become also stronger and more numerous than before, the ornamentation in this stage resembling well that of the adult stage of *Eupachydiscus*; still later the constriction becomes weak or diminishes and tuberculated ribs become obsolete on the umbilical half of the whorl, while ribs on the external half are well developed. Thus the shell in the late stage of growth is superficially similar to that of *Puzosia* in shell-form and in ornamentation. The suture-line is of the same type as that of other Pachydiscids and very different from that of Puzosids, although L in the adult stage is somewhat long.

As to the generic name for *Canadoceras* again a remark is necessary. *Canadoceras* was established by SPATH, 1922, for the genotype of *Ammonites newberryanus* MEEK from the Neocretaceous of the Pacific side of Canada. The describ-

ed specimen of MEEK's species resembles the middle stage of "*Pachydiscus*" *kossmati* YABE MS from Japan quite well, and the two forms certainly belong to the same genus, if not to the same species. Unfortunately the definition of *Canadoceras* by SPATH was not clear and the ontogeny of the genotype is unknown. For the group of *Pachydiscus kossmati* YABE, MS, the generic name *Pseudopachydiscus* was proposed by YABE and SHIMIZU (1926). So far as the two species under consideration are regarded to belong to the same genus, the generic name, *Canadoceras*, should be used instead of *Pseudopachydiscus*. Furthermore, the latter is invalid because the genotype has not yet been described nor illustrated. The above described revised definition of *Canadoceras* should be useful, although it depends chiefly on the observations of the Japanese specimens. Although SPATH's statement that *Canadoceras* has an intimate relation to the genus, *Kitchinites*, of the Puzosinae is not correct as mentioned above, the generic name is valid only because the genotype was designated.

5. *Pachydiscus* ZITTEL em. GROS-SOUVRE (1893) [Genotype *Ammonites neubergicus* v. HAUER]

The genus is characterized by its compressed whorl and the differentiation of the ornamentation in the late stage of growth into the umbilical one (i. e. tubercles and the ribs extended from them) and the ventral one (i. e. numerous ventral costae).

Pachydiscus neubergicus v. HAUER constitutes a solid group together with *P. egerloni* (FORBES), *P. gollevillensis* d'ORBIGNY, etc. For this group HYATT (1900) proposed the generic name *Parapachydiscus* and separated it from "*Pachydiscus* (s. s.)", the genotype of the latter was defined as *Ammonites*

peramplus MANTELL. The generic names *Pachydiscus* and *Parapachydiscus* in HYATT's sense have long been used until SPATH pointed out the necessity of a new nomenclature. As already mentioned, *P. neubergicus* HAUER was selected as the genotype of genus, *Pachydiscus*, by A. de GROSSOUVRE. (1893) before HYATT (1900) introduced the name *Parapachydiscus*. Accordingly the name *Pachydiscus* should be used instead of *Parapachydiscus*, while HYATT's *Pachydiscus* should be replaced by SPATH's *Lewesiceras*.

I suppose that the so-called "inflated *Parapachydiscus*," i. e. the group of *P. colligatus* BINKHORST may be separated from *Pachydiscus* s. s. and may be possibly referable to genus *Anapachydiscus*. I cannot, however, decide its accurate position of classification, because I have no opportunity of examining the European specimens.

6. *Pachydiscus* (*Neodesmoceras*) R. SAITO MS subgen. nov. [Subgenotype *P. (Neodesmoceras) japonicus* SAITO, MS.]

This has also relatively compressed whorl, and is almost smooth or only very faintly ornamented throughout life. Accordingly the shell looks like a very large form of *Desmoceras*, but the ontogenetical development in shell-form and the suture-line clearly indicate the character of *Pachydiscus*. It has common characters and connections with the typical *Pachydiscus* above defined, but has a tendency of decrease in ornamentation instead of differentiation in ornaments. The decreased tendency in ornamentation is, however, found in *Pachydiscus* (s. s.) and the differentiation in ornaments is not so conspicuous in some species of *Pachydiscus* (s. s.) Therefore, I am inclined to regard the present form as a subgenus of *Pachydiscus* rather than to separate it as a different genus.

The subgeneric name is adopted from the MS name of R. SAITO³⁾.

Besides the species yielded from Japan, *Pachydiscus catarinae* ANDERSON and HANNA (1938) from the Pacific side of America may be a representative of the subgenus.

7. *Menuites* SPATH 1922 [Genotype *Ammonites menu* FORBES]

This is small in size as compared with other Pachydiscids. It is a dwarf form of the Pachydiscinae. It is characterized by tubercles at the ventro-lateral edge or on ventral side in its late stage of growth, besides the umbilical one. On the living chamber a strong constriction is developed. These characters remind us of those of "*Scaphites*," but the coiling is not scaphitoid⁴⁾. Shell-form is pachydiscoid, the genus, however, including the inflated species and the compressed species.

In the immature stage, some species resembles the immature form of *Anapachydiscus*, some other species that of *Eupachydiscus*, and still some other species that of *Canadoceras*. All these are provided with the characteristic feature of *Menuites* in mature stage.

There may be a possibility that the "*Menuites*" represent sexual dimorphism together with other Pachydiscids mentioned above. So far as the present knowledge, however, is concerned, the menuitoid pachydiscids is not always intimately coexistent with other normal

3) Owing to the kindness of members of Hokkaido University, I had an opportunity of examining the specimen which was studied by R. SAITO. Although the subgeneric name *Pseudodesmoceras* is more appropriate than *Neodesmoceras*, the latter is adopted here because SAITO has already given the name in his manuscript.

4) My observation differs in this point from that of SPATH.

pachydiscids. Accordingly the possibility does not seem probable.

A summary on the classification of the Japanese fossils:—The Japanese fossils of the Pachydiscinae which I have treated so far are classified as follows:

Genus *Anapachydiscus*: *A. fascicostatus* (YABE), *A. sutneri* (YOKOYAMA), *A. yezoensis* (YABE), *A. (?) subtililobatus* (JIMBO), *A. naumanni* (YOKOYAMA)

Genus *Eupachydiscus*: *E. haradai* (JIMBO) em. (=including *E. "teshioensis"* (JIMBO))

Genus *Canadoceras*: *C. kossmati* (YABE) em., *C. multicoatum* MATSUMOTO, MS., *C. compressum* MATSUMOTO, MS., *C. (?) yokoyamai* (JIMBO)

Genus *Pachydiscus*: *P. aff. egertoni* (FORBES), *P. subcompressus* MATSUMOTO, MS., *P. (Neodesmoceras) japonicus* SAITO MS., *P. (N.) (?) Kobayashii* (SHIMIZU), *P. (N.)* sp. indet.

Genus *Menuites*: *M. aff. menu* (FORBES), *M. naibuchiensis* MATSUMOTO, MS., *M. rotalinoides* (YABE), *M. ryugasensis* MATSUMOTO, MS.

The full description of the species is intended to be made in a separate monograph.

A summary on the stratigraphic occurrence of the Japanese species:—From what I described and discussed on the Cretaceous stratigraphy of Japan (1942-1943), I can cite again a summarized knowledge on the stratigraphic occurrence of the Japanese species of the Pachydiscinae. In the following description the Japanese nomenclature of the time-stratigraphic classification is used. As to the series-name, the Urakawan *plus* the Hetonaian in our scale correspond approximately to the European Senonian s. l.

(1) *Anapachydiscus fascicostatus*, *A. sutneri*, and *A. yezoensis* are yielded from the Urakawan series. The former two species, are, at least, found either in the lower stage and in the upper stage of the series.

(2) *Anapachydiscus naumanni* is characteristic to the uppermost substage of the Urakawan series, and is also detected in less number from the subjacent zone.

(3) *Anapachydiscus subtililobatus* is collected from a boulder which is presumed to have been derived from the lower stage of the Hetonaian series.

(4) *Eupachydiscus haradai* ranges from the upper stage of the Urakawan series to the lower stage of the Hetonaian series. In some district the fossil seems to be characteristic to a certain limited zone within these stages⁵⁾.

(5) *Canadoceras kossmati* and *C. multicoatum* are characteristic of the lower stage of the Hetonaian series, while, *C. compressum* is restricted to the upper stage of the series.

(6) *Pachydiscus subcompressus*, *P. aff. egertoni* and *P. (Neodesmoceras) japonicus* are yielded from the upper stage of the Hetonaian series.

(7) *Menuites* are known to range from the upper stage of the Urakawan stage to the lower stage of the Hetonaian series. The true-range of the species is, however, uncertain because of the insufficiency of data. Only *M. ryugasensis* seems to be characteristic to the lower stage of the Hetonaian series.

5) YABE once placed the "zone of *Pachydiscus naumanni*" on the "zone of *P. haradai*." This sequence is, in reality, only a local phenomenon. Generally the stratigraphic occurrence of these two species does not follow this sequence. The coexistence and even the reverse sequence are found in some other place.

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PROCEEDINGS OF THE PALAEONTOLOGICAL SOCIETY OF JAPAN

「日本古生物學會第38回例会」昭和20年
2月17日九州帝國大學理學部地質學教室に
於て開催す(參會者15名)。講演者並に講演
題目次の如し。

有孔蟲化石群の對比に就いて

(代讀) 森島正夫

Borelis reticularis (新種) 及び *Acer-
vulina linearis* (新種) に就いて (代讀)

..... 半澤正二郎

ジャバ島産所謂 *Notocyathus* 屬珊瑚に就

いて (代讀) 江口元起

本溪灣地方の黃旗統產二疊紀腕足類に就

いて 島山隆三

武蔵國五口市スキチック二枚貝に就いて

(代讀) 田中啓策

湯淺産下部白堊紀海膽 (代讀) 大久保雅弘

越後油田介蟲類化石 (代讀) 森島正夫

北支那山西省寧炭田産中生代化石植物に

就いて (代讀) 遠藤誠道

Schizoneura manchuriensis の形態及び系

統學的地位に就いて 今野圓藏

ジュラ系化石層序學に就いて

..... 松本達郎・小野 暎

「日本古生物學會第39回例会」昭和23年
6月25日東京大學理學部地質學教室に於て開
催す(參會者21名)。講演者並に講演題目次
の如し。

福島縣湯本町の淺貝層の有孔蟲化石に付

いて (代讀) 淺野 清

栃木縣鹽谷郡栗山村並に兵庫縣川邊郡多

田村産紡錘蟲 藤本治義

四國山姥石灰岩産の珊瑚に就いて

(代讀) 湊 正雄

北上長岩統の化石に就いて (代讀) 湊 正雄

日本産オルソスクラ亞屬に就いて

..... 大塚彌之助

Protorotella としやごの進化 大山 桂

滿洲本溪灣炭田彩家統產 *Gigantopteris* cf.

yabei KAWASAKI の實葉化石に就いて

(代讀) 今野圓藏

「日本古生物學會第40回例会」昭和23年
10月30日東北大學地質學古生物學教室に
於て開催す(參會者29名)。講演者並に講演
題目次の如し。

On the Genus *Cruciloculina* d'ORBIGNY,

1839. Kiyoshi ASANO

島ノ巢石灰岩の珊瑚ファウナ 江口元起

Halysites 石灰岩の新發見 (代讀)

..... 湊 正雄・武田裕幸

On the Structure and History of the

Phylloides in the Some Echinoidea.

..... Syōzō NISIYAMA

刀形類 (*Machaeridia*) の1新屬

Clinocoelus (代讀) 小林貞一

Turritella from the Shimokita Peninsula.

..... Kotora HATAI & Tamio KOTAKA

A Note on *Pholadomya japonica* Yoko-

yama, Kotora HATAI & Syozo NISIYAMA

Actinodontophora nov., a Permian Pele-

cypod from Shikoku, Japan.

..... Koichiro ICHIKAWA

新第三紀 *Pecten* の新種 (代讀)

..... 柴田松太郎・志村哲良

Shirakia Kawasaki 及び *Shirakiopteris* n.

gen. に就いて 今野圓藏

宮城縣根白石植物化石層産化石について

..... 奥津春生

Neoschwagerinae 亞科について 矢部長克

「日本古生物學會第41回例会」昭和24年
2月19日京都大學理學部地質學礦物學教室
に於て開催す(參會者22名)。講演者並に講
演題目次の如し。

Foraminifera from the Sakuma Forma-
tion in Chiba.

..... Hiroo INOUE & Kojiro NAKASEKO

Study on the Accumulation of Forami-

niferal Remains in Japanese Bays, No. 4. Tokyo Bay.....Masao MORISHIMA	富山・石川産化石海膽類.....森下 晶
Miocene Molluscan Fauna of the Mizu- nami Formation in Mino (Preliminary Report).....Kazuo HUZITA	Miocene <i>Calliosioma</i> from the Yatsuo Subgroup in Toyama.Nobuo IKEBE & Karyu TSUDA
<i>Glycymeris</i> の計測.....横山次郎	舞鶴三疊系の化石群.....中澤圭二
<i>Amussiopecten praesignis</i> (YOKOYAMA) と <i>Chlamys miurensis</i> (YOKOYAMA) との共産関係について (代讀).....生越 忠・小池 清	The Occurrence of <i>Actinoceras</i> (s. s) in Eastern Asia (代讀).....Teiichi KOBAYASHI
日本産三葉蟲 (その 1) (代讀).....大久保雅弘	Mesozoic Plants from the Soma District.Nobuo KOBATAKE
On Some Mesozoic Plants from Shinshu, South Keishodo, Korea.Nobuo KOBATAKE	Some Plant fossils from the Northern part of Nishitagawa Coal-Field, Yamagata Prefecture.Toshimasa TANAI

「日本古生物學會第42回例会」昭和25年
6月24日東北大學理學部地質學古生物學教
室に於て開催す (參會者33名)。講演者並に
講演題目次の如し。

東亞の <i>Redlichia</i> 屬について.....遠藤隆次	日本産二疊紀紡錘蟲 <i>Eoverbeekina</i> , <i>Sphe- rulina</i> , <i>Nankinella</i>半澤正四郎
東亞古期中生代の <i>Estherites</i> (豫報).....小林貞一	岡山縣津山産 <i>Operculina</i> に就いて 今泉力藏
Tertiary <i>Lituolidae</i> from Japan.....Kiyoshi ASANO	New <i>Turritella</i> from Japan (Part 1)Tamio KOTAKA
石狩層群の貝化石について (代讀).....大山 桂	仙臺近郊産 <i>Sassafras</i> について (代讀).....奥津春生
<i>Carpinus</i> の化石.....遠藤誠道	

「日本古生物學會第43回例会」昭和25年
9月20日北海道大學理學部地質學礦物學教

室に於て開催す (參會者23名)。講演者並に
講演題目次の如し。

Neue Entdeckung von Radiolaria aus dem Oboke-Gneiss, Sikoku, Japan.Masao MINATO	北海道天鹽國中川郡中川村學校澤白堊系 有孔蟲について (代讀).....淺野 清
Permian and Carboniferous Corals of Japan.Masao MINATO	北上産 <i>Syringopora</i> について.....武田裕幸
Two New Species of Brachiopods (代讀)Ichiro HAYASAKA & Kotora HATAI	Note on the <i>Entomonotis</i> bearing Triassic Formation at Iwai near Itsukaichi, Tokyo Prefecture with Description of a New <i>Entomonotis</i> (代讀).....Koichiro ICHIKAWA
青森縣第三紀層産の <i>Pecten</i> 新種.....志田哲良・紫田松太郎	長野縣南部の貝化石.....鹿間時夫
On <i>Palaeopharus</i> , a Late Triassic Pele- cypod Genus (代讀).....Teiichi KOBAYASHI & Koichiro ICHIKAWA	北海道石狩國紅葉山地方の二三の貝化石 について.....松井 愈
鳥巢層群産 <i>Pecten</i> および <i>Lima</i> につい て (代讀).....木村敏雄	上部白堊紀層産 <i>Baroiceras minium</i> YABE の個體發生について.....深田淳夫
“ <i>Metasequoia</i> ” について (代讀).....遠藤誠道	日本産三葉蟲 (その 2) (代讀).....大久保雅弘
日本産エトロング階 <i>Reticularia</i> につい て (代讀).....大久保雅弘	A New Species of Fossil <i>Pholadomya</i> from the Japanese Miocene (代讀).....Masae OMORI
On the Variation of <i>Pecten albicans</i> SCHRÖTER (代讀).....Masae OMORI & Tsutomu UTASHIRO	On <i>Palliolium peckhami</i> (GABB) (代讀)Masae OMORI & Tsutomu UTASHIRO
本邦古生代石灰藻 (代讀).....石島 渉	釧路國釧路市外舌辛層より <i>Operculina</i> を 産す.....大炊御門經輝

「日本古生物學會第44回例会」昭和25年
12月2日京都大學理學部地質學礦物學教室
に於て開催す (參會者12名)。講演者並に講

演題目次の如し。

On Some *Lepidocyclina* from Japan (Part
1) (代讀) Kiyoshi KOIKE
Several New species of Foraminifera
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..... 千地萬造・中世古幸次郎
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..... Keiji NAKAZAWA
Some Fossil Bryozoa from Yatuo Group
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..... Masao MORISHITA
A Note on the Jurassic Stratigraphy of
the Shizugawa District, Miyagi
Prefecture, Northeast Japan.
..... Tatsuhiro MATSUMOTO & Akira ONO

日本古生物學會々則 (1950年4月7日評議員會にて決定)

名 稱

第1條 本會は日本地質學會の部會で日本古生物學會という。

目 的

第2條 本會は古生物學およびこれに關係ある諸學科の進歩および普及を計るのを目的とする。

事 業

第3條 本會は第2條の目的を達するため下記の事業を行う。

第1項 會誌その他出版物の發行。

第2項 學術講演會の開催。

第3項 普及のため採集會講演會その他の開催

會 員

第4條 本會は古生物學およびこれに關係ある諸學科に興味を持つ會員で組織される、會員を分けて正會員、賛助會員、および名譽會員とする。

第5條 本會々員には下記の義務と權利がある。

第1項 會員は別に定められは會費を納めなければならない。

第2項 會員には會誌が配布される。

第3項 會員は學會において討論を経た論文を會誌に投稿することができる。

運 營

第6條 本會は次の機關によつて運営される。

第1項 總會、總會は全會員を以て組織し、本會運営の基本方針を決定する、總會は正會員の1/10

を以て成立する。

第 2 項 會長、會長は正會員中から選出され、本會を代表し、會務を管理する。

第 3 項 評議員會、評議員會は正會員中から選出された評議員を以て組織し、基本方針に従い運営要項を議決する。

第 4 項 常務委員會、常務委員會は評議員中より互選された常務委員を以て組織し會務を運営する。

第 5 項 役員の選舉は原則として通信選舉による。

第 7 條 本會々則の變更は總會の決議によつて行ふ。

細 則

事 業

第 8 條 會誌を年 2 回以上發行する。

會 員

第 9 條 正會員は古生物學又はこれに關係ある諸學科について學識、經驗ある者及び特に興味を有する者とする。

第 10 條 贊助會員は第 2 條の目的を贊助する個人又は法人とする。

第 11 條 名譽會員は古生物學について顯著な功績のある者の中から評議員會が推薦し、總會の決議によつてこれを定める。

第 12 條 本會に入會したいものは住所、氏名（ローマ字併記）、生年月日、職業、最終學歷等を明記して本會に申込みばよい。

會 費

第 13 條 會費の金額は總會に計つて定める、會費は正會員年 400 圓（但し在外會員年 2 \$）贊助會員年 10,000 圓以上とする名譽會員は會費の納入の義務がない。

第 14 條 本會の収入は會費と寄附金による。

第 15 條 會長は 1 名、評議員は 15 名、常務委員は若干名とし、任期は總て 1 年とする、但し再選を妨げない。

附 則 第 1 條 1950 年度の評議員は 20 名とする。

第 2 條 常務委員は當分の間 4 名とする。

第 3 條 會誌の發行は當分年 1 回とする。

日本古生物學會報告紀事出版規定（1950 年 6 月 24 日評議員會にて決定）

I. 投稿規定

1. 原稿は日本古生物學會又は日本地質學會の總會講演會または例會において講演（代讀を認める）した後、編集委員宛送付する。
2. 原稿は歐文に限り、タイプライター用紙（22.5×27.5cm）に 1 行おきに明瞭にタイプライトし、學名はイタリックに著者自身指定する。

3. 原稿（挿圖・地圖・附表を含む）は刷上り 6 頁（タイプライター用紙 14~15 枚）を限度とする。
4. 圖版（14.2×20.0cm）は 1 枚まで掲載出来る。
5. 挿圖（6 坪以下のもの 2 個・1 坪は 1 寸平方）は白紙に墨または製圖用黒インクにて明瞭に書き、圖中の字はなるべく活字又はタイプライター字をはりつける。印刷に際して縮圖することがあるから、線の太さ字の大きさなどはこの點を充分に考えに入れて書く必要がある。
6. 地圖には必ず縮尺をつける、縮尺何分の 1 としたものはいけない。
7. 以上の限度を超える場合は著者がその費用を負担する。
8. 原稿には邦文表題と簡単な邦文要約を附記する。
9. 引用文献はすべて文の最後に文献の項を設けてそこに一括する。文献は著者名のアルファベット順に配列し、同一著者の論文は發表年代順とする。著者名・發表年・論文表題・雑誌名・巻・頁・圖版・挿圖・地圖・表等を正確に記入する。
10. 原稿には著者名の次に現在の所屬機關名を附記する。
11. 別刷の必要部数を原稿に附記する。但し無表紙 30 部までは無償で、それ以上は著者がその費用を負担する。
12. 原稿は著者の責任において外人または適當と認められる人に見て貰う。

II. 編集規定

1. 編集委員は原稿の受理・保管・編集を行う。
2. 編集委員は原稿を受理した場合、をの原稿が鮮明であり且つ其の他形式上の不備の無いことを確認した上で直ちに受理日附を記入し、著者には保管證を送る。
3. 原稿の採用・不採相は會長と常務委員との合議により決定する。
4. 編集委員は不採用原稿を不採用の理由を附記して著者に返却する。
5. 編集委員は採用原稿を出版費に應じて、受理日附の順に掲載する。
6. 著者が編集前に論文内容を訂正した場合には受理日附を変更する。
7. 印刷の體裁は大略 Journal of Paleontology の體裁に準ずる。
8. 校正は出版委員の責任においてこれを行う。

1950 年度役員

會長 矢部長克

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					湊 正雄

ト報

本會前評議員大石三郎君は昭和 23 年 11 月 30 日死去せられた。

本會評議員大塚彌之助君は昭和 25 年 8 月 7 日死去せられた。

Announcement

Bibliography of Japanese Palaeontology and Related Sciences 1941-1950

including papers published by Japanese authors as well as those
by others which concern Japan and its surroundings

Compiled by

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Regulations for Publication in Transactions and Proceedings of the
Palaeontological Society of Japan (24 June 1950)

1. Manuscripts should be submitted to the Editor after being read at the General Meeting or the Ordinary Meeting of the Palaeontological Society of Japan or of the Geological Society of Japan.
2. Manuscripts shall be written in European language, they should be typed on one side of standard-size (22.5×27.5 cm) paper and double-spaced throughout. Biological names should be in italics and be underlined by the author.
3. Manuscripts (inclusive of text-figures, maps and tables) will be limited to 6 printed pages (14–15 type written pages).
4. Illustrations will be limited to one plate (14.2×20.0 cm).
5. Text-figures (2 if less than 6 tsubo, 1 tsubo is 1 square sun) should be drawn carefully on white paper with drawing or India ink, letters used in the figures should be either printed or typed letters pasted-in. Figures may be reduced, so authors are requested to carefully select the size and thickness of the lines or letters used.
6. Maps should be accompanied with scale, fractions should not be used.
7. The author is requested to pay for any cost extending beyond the above stated regulations.
8. Manuscripts should have the title and a brief abstract in Japanese (such will be added for persons not familiar with Japanese language).
9. Literature cited or referred to should be listed at the end of the manuscript in the form of bibliography. Bibliography should be arranged in alphabetic order of author and by year. The order will be, Author, Year, Title of Paper, Name of Journal, Volume, Page, Plates, Figures, Maps, Tables.
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11. The desired number of reprints should be indicated on the right corner of the front page of the manuscript. 30 reprints without cover, but with reference to volume, number and year will be furnished free of charge to the author (if more than one author is involved, they shall be divided). Additional reprints will be furnished at the printers rate.
12. Manuscripts should be edited by a foreigner or some suitable person, at the author's responsibility, before submitting for publication.

Editorial Regulations

1. The Editorial staff will transact, preserve and edit the manuscripts.
 2. When the Editorial Staff transacts a manuscript, a notification with date of acceptance will be sent to the author, and the manuscript is clear, and abides with the regulations.
 3. Acceptance or non-acceptance of manuscripts will be decided by council of Chief Editor and Chairman.
 4. Manuscripts not accepted for publication will be returned to the author with notification from the Chief Editor of the reason(s) for its rejection.
 5. Manuscripts accepted, will be published in the order received with the date of acceptance indicated thereon.
 6. Manuscripts whose contents are altered by the author after being accepted for publication, will have their date of acceptance changed.
 7. The printing style will be as Journal of Paleontology.
 8. Proof reading will be done under the responsibility of the Publication Committee.
- The president and councillors for the fiscal year of 1950.

President: Hisakatsu YABE

Councillors: Kiyoshi ASANO, Nobuo IKEBE, Motoki EGUCHI, Seido ENDO, Ryuji ENDO (Business and Accountant), Tsuneteru OINOMIKADO (Publication), Yanosuke OTUKA, Teiichi KOBAYASHI (Editor), Enzo KONNO, Tokio SHIKAMA, Koiti SUZUKI, Fuyuji TAKAI (General Affairs), Ryoza TORIYAMA, Kotora HATAI, Ichiro HAYASAKA, Shoshiro HANZAWA, Haruyosi HUZIMOTO, Jiro MAKIYAMA, Tatsuro MATSUMOTO, Masao MINATO.

CONSTITUTION

of the

PALAEONTOLOGICAL SOCIETY OF JAPAN

ARTICLE 1. Name

The Society shall be known as the Palaeontological Society of Japan. The Society is a section of the Geological Society of Japan.

ARTICLE 2. Object

The object of the Society shall be to promote the study of palaeontology and sciences thereby related.

ARTICLE 3. Achievement

The Society in order to execute Article 2. shall (a) issue the Society journal and other publications, (b) hold or sponsor scientific lectures and meetings, and, (c) sponsor collecting or field trips, and lectures.

ARTICLE 4. Membership

The Society shall be composed of persons who are active or interested in palaeontology or science thereby related, and shall be known as, regular members, honorary members and patrons.

ARTICLE 5. The members of the Society shall be obliged to payment of annual dues of the society, and enjoy privilege of receiving the Society journal and to submit papers for publication in the Society journal, which have been read and discussed at the meetings.

ARTICLE 6. Administration

The Society shall have the following organizations for its administration.

- (a) General meeting. The general meeting shall be composed of the Society members. More than one-tenth of regular members shall be present to hold general meetings. Administration affairs shall be decided during the general meeting.
- (b) President. The president shall be elected from regular members. The president shall represent the Society and supervise business matters.
- (c) Council. The council shall be composed of councillors who are elected from regular members. The council shall discuss administrative affairs.
- (d) Business council. The business councillors shall be elected from council members, and shall administer business affairs.
- (e) Officers shall be elected by vote of returned mail ballots, as a general rule.

ARTICLE 7. Amendments to the constitution shall be by decision of the general meeting.

By-Laws and Administration

ARTICLE 8. The Society journal shall be issued bi-annually.

ARTICLE 9. Regular members shall be persons who have knowledge, experience or interest in palaeontology or sciences thereby related.

ARTICLE 10. Patrons shall be individuals or organizations advocating the object in Article 2.

ARTICLE 11. Honorary members shall be persons of distinguished achievement in palaeontology. The council shall nominate honorary members for decision by the general meeting.

ARTICLE 12. Applicants for membership to the Society shall submit their name (full), address (mailing), date of birth, occupation, and name of school graduated from.

Dues

ARTICLE 13. Rates for annual dues of the Society shall be decided during the general meeting. Annual dues for regular members is Yen 400.00 (domestic) and US. \$2.00 (foreign). Patrons are individuals or organizations donating more than Yen 10,000.00 annually. Honorary members are free from obligations.

ARTICLE 14. The Society income shall be from membership dues and bestowments.

ARTICLE 15. The Society shall have one chairman, fifteen councillors and several business councillors, whose term of office shall be one year. They shall be free to re-election.

Addendum

ARTICLE 1. There shall be twenty councillors for the fiscal year of 1950.

ARTICLE 2. There shall be four business councillors for the present.

ARTICLE 3. The Society journal shall be issued once a year for the present.